NOTE : 1.Figure should be Neat and labeled.
2. All Questions are compulsory.
3. Right side indicates marks.

1 Answer any 2 from following. (10
Write a short note on Zener diode.
Explain the concept of PNP & NPN Transistor.
Difference between BJT and FET.
Draw and explain Bridge rectifier.

2 Answer any 2 from following. (10
Draw and explain Darlington pair.
Draw and explain DC amplifier.
Draw and explain BJT as a single stage amplifier.
Draw and explain Multistage amplifiers.

3 Answer any 2 from following. (10
In an Astable circuit, $R_A = 2K\Omega$, $R_B = 3K\Omega$ and $C = 0.1\mu F$.Calculate pulse width tc , td and free running frequency f.
Draw and explain Monostable Multivibrator.
Difference between positive feedback and negative feedback.
Draw and explain Colpitts Oscillator.

4Answer any 2 from following. (10
Draw and explain Pilot Carrier SSB system.
Draw and explain Envelope Detector.
Explain concept of SSB with advantages and disadvantages.
Draw and explain Balanced Modulator using FET.

5 Answer any 2 from following. (10
Difference between AM and FM.
Explain pre-emphasis and de-emphasis.
Explain TDM with advantages and disadvantages.
Explain PWM and PPM.

6 Answer any 2 from following. (10
Write a short note on Fiber optic cable.
Write a short note on Ray model.
Explain Multimode fibers.
Explain LED & LASER.

Answer any 3 from following. (15
Explain Conductor, Semiconductor and Insulator.
Draw and explain two stage RC coupled amplifier.
Draw and explain Hartley Oscillator.
Explain need for modulation system.
Explain FDM with advantages and disadvantages.
Explain the Need for Fiber optic communication.